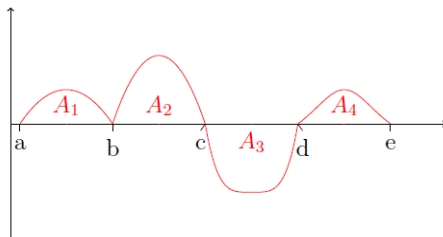


Names: _____

Group #: _____

1. Imagine the function $f(x)$ bounds four different regions whose **areas** are indicated below.



Determine the following definite integrals given $A_1 = 5$, $A_2 = 8$, $A_3 = 9$, and $A_4 = 6$.

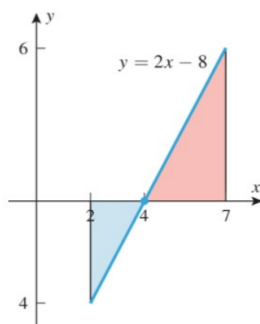
(a) $\int_a^c f(x)dx$

(c) $\int_a^d f(x)dx$

(b) $\int_c^d \frac{1}{3}f(x)dx$

(d) $\int_b^e -2f(x)dx$

2. Use the graph below to evaluate the following:

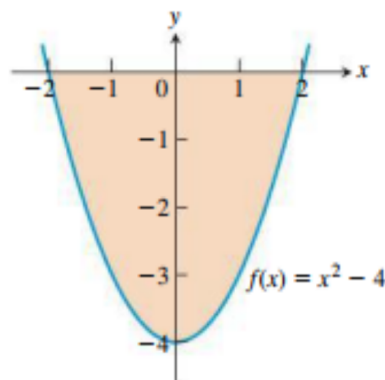


- (a) **Using geometry**, compute the net area between the function $f(x) = 2x - 8$ and the x -axis on the interval $[2, 7]$.

- (b) Confirm your previous answer by evaluating the definite integral $\int_2^7 (2x - 8)dx$.

3. Compute the net area of the following function on the given interval.

$$f(x) = x^2 - 4; [-2, 2]$$



4. Evaluate the following definite integrals. If substitution is used, be sure to clearly indicate u and du .

(a) $\int_1^2 \frac{2}{x^2} dx$

(b) $\int_0^3 \frac{1}{5x + 1} dx$

$$(c) \int_1^3 \left(3x^2 - \frac{1}{4}x^3 \right) dx$$

$$(d) \int_0^{\pi/4} \tan(\theta) \sec^2(\theta) d\theta$$

$$(e) \int_{-2}^{-1} x \sqrt[4]{x+2} dx$$

$$(f) \int_1^3 \frac{e^{1/x}}{x^2} dx$$